NuMI Target in FLUKA

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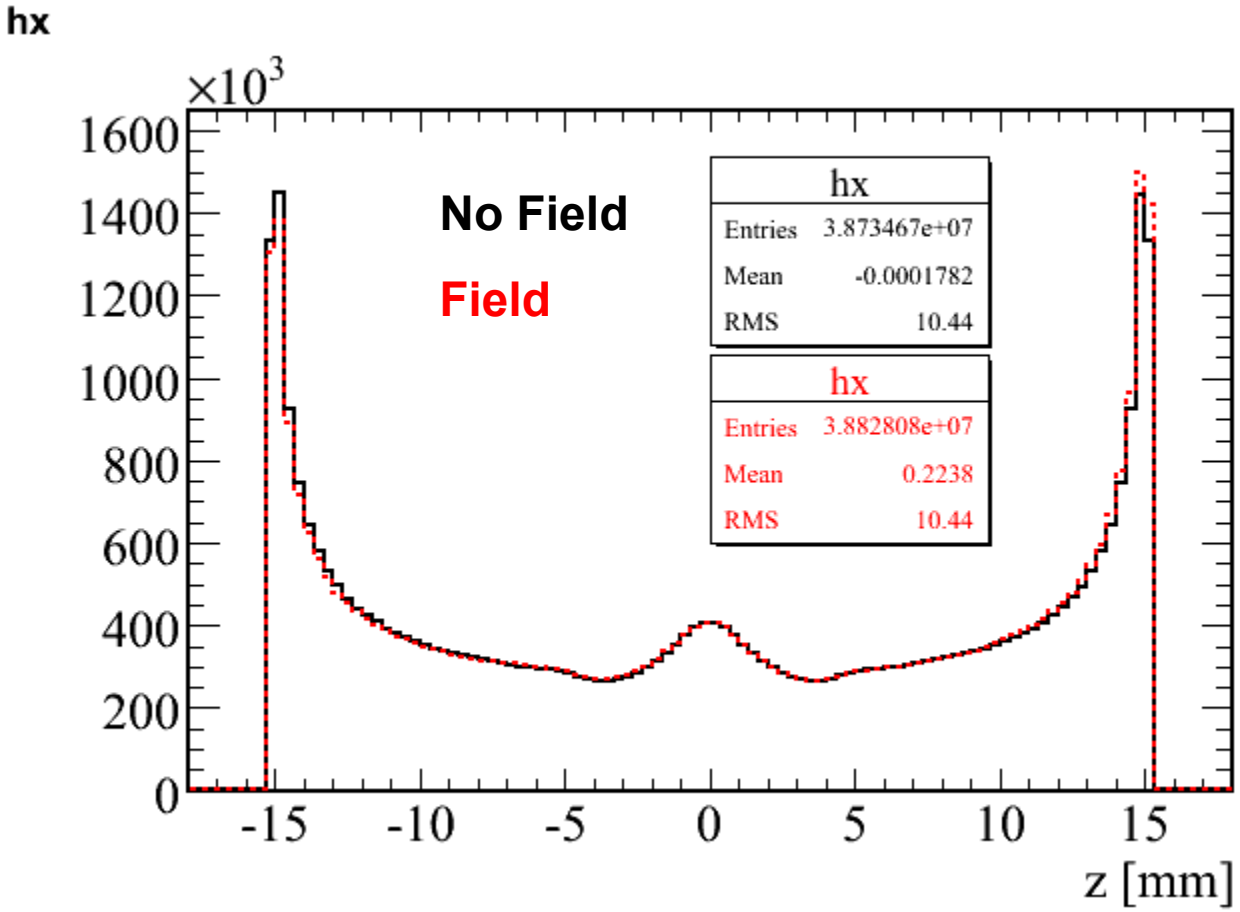
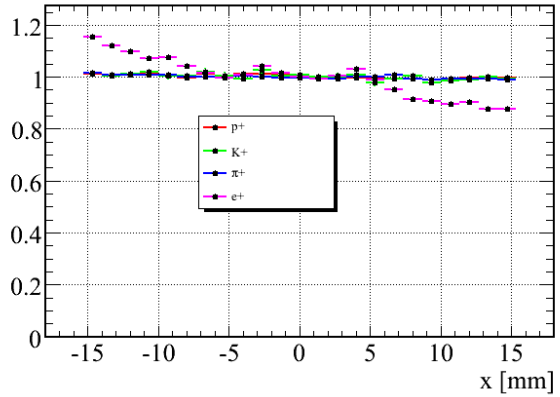
- Added JGG field into NuMI target in fluka
  - Comparison of field on and field off MC
- Used survey data for NuMI target position
- For NuMI, particles traveling between (region # 2 and region # 4), (region #3 and region #9) should be recorded
  - Currently in fluscw.f, particles between region #1 and region #2 are recorded
  - One would need to use fluscw2.f for NuMI target
- Output files produced by fluka (~1M events) on /pfns/e907/mc/stdhep/NuMI

x Distribution

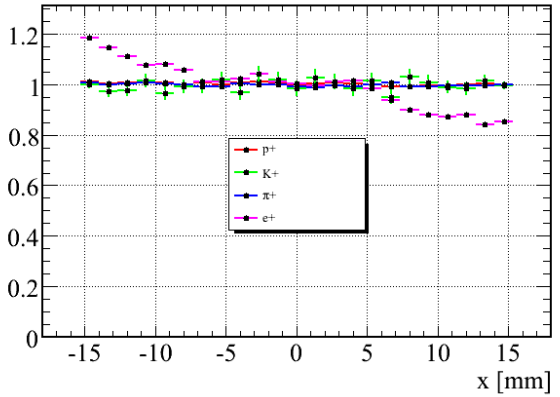


$x_{Field}/x_{NoField}$ Distribution for +ve particles

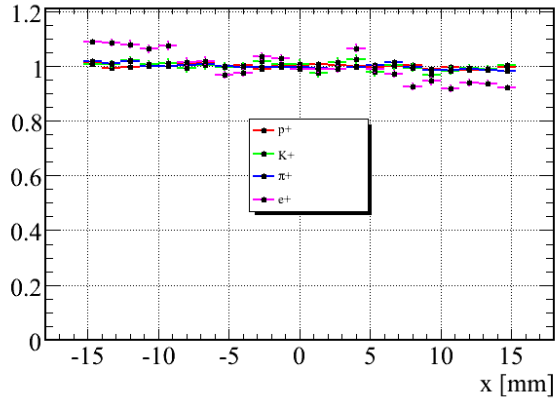
Positive particles: Field/No_Field



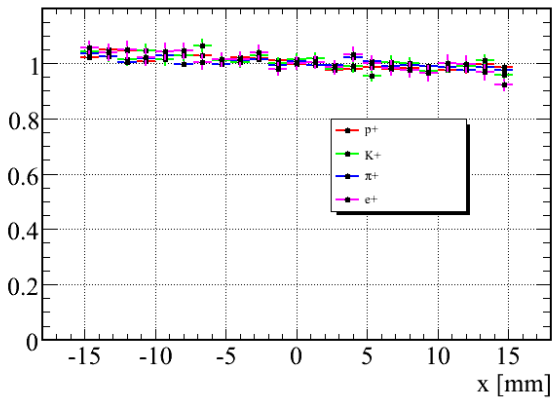
Positive particles: Field/No_Field, p<=1GeV



Positive particles: Field/No_Field, 1GeV<p<=5GeV

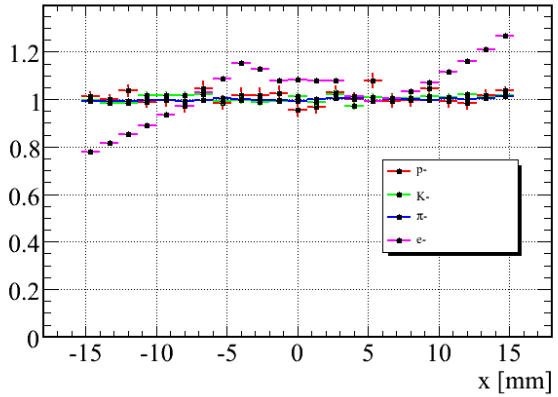


Positive particles: Field/No_Field, p>5GeV

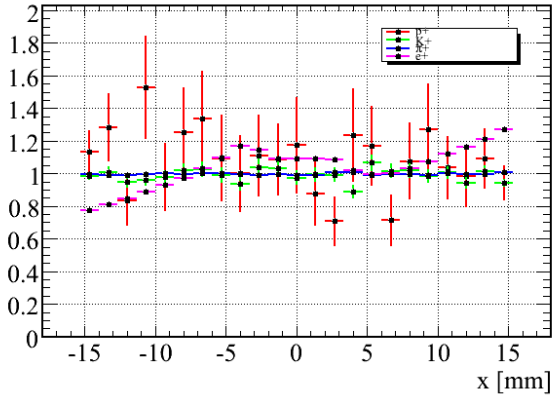


$x_{Field}/x_{NoField}$ Distribution for -ve particles

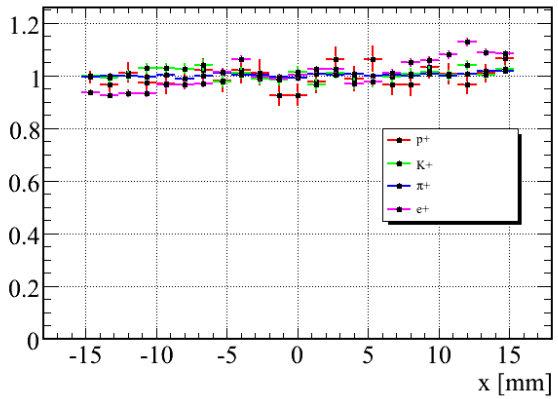
Negative particles: Field/No_Field



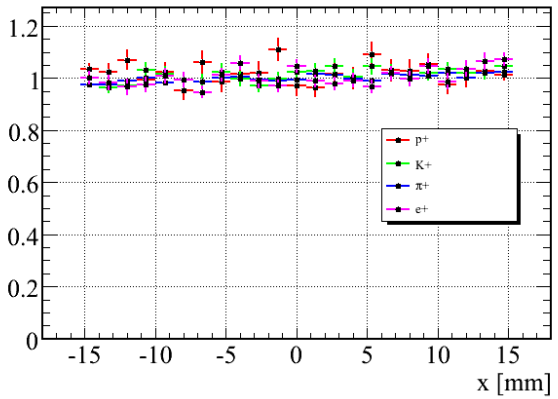
Negitive particles: Field/No_Field, p<=1GeV



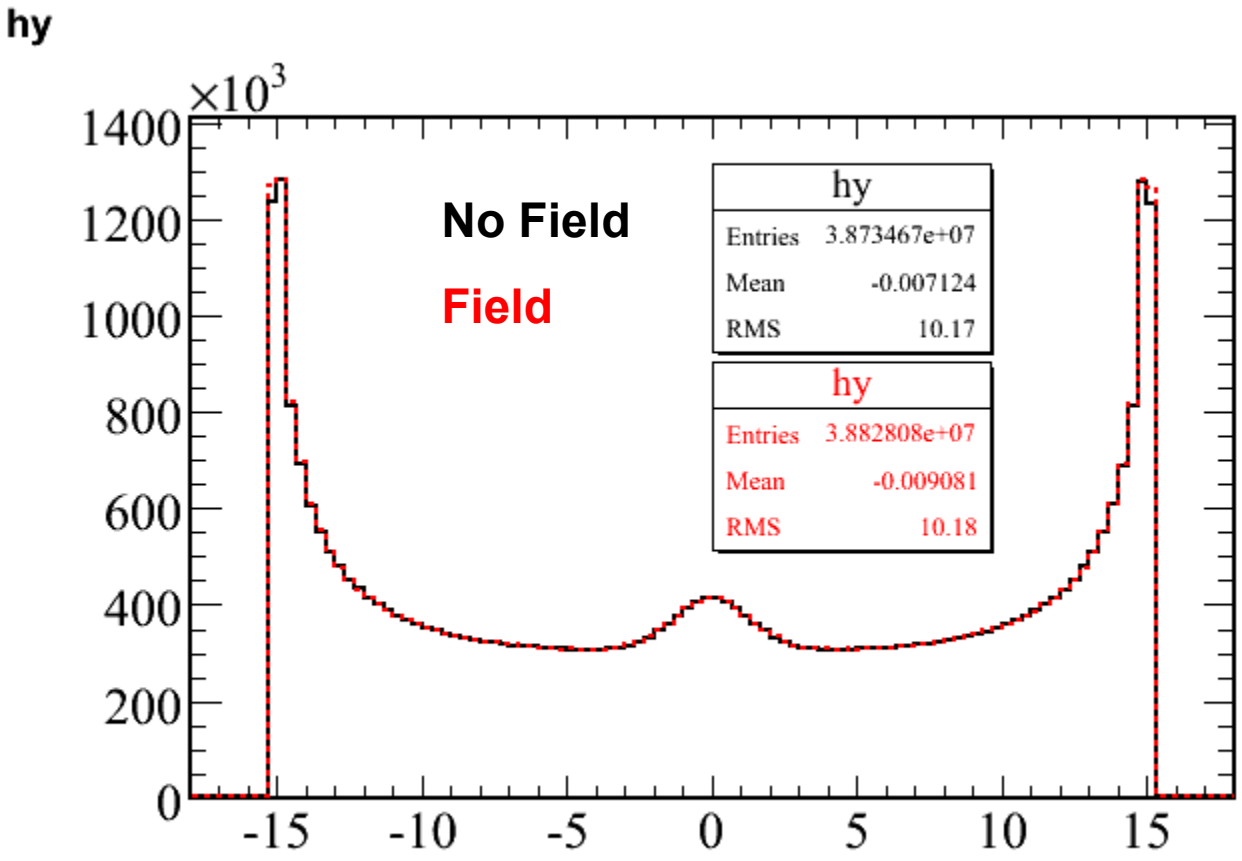
Negitive particles: Field/No_Field, 1GeV<p<=5GeV



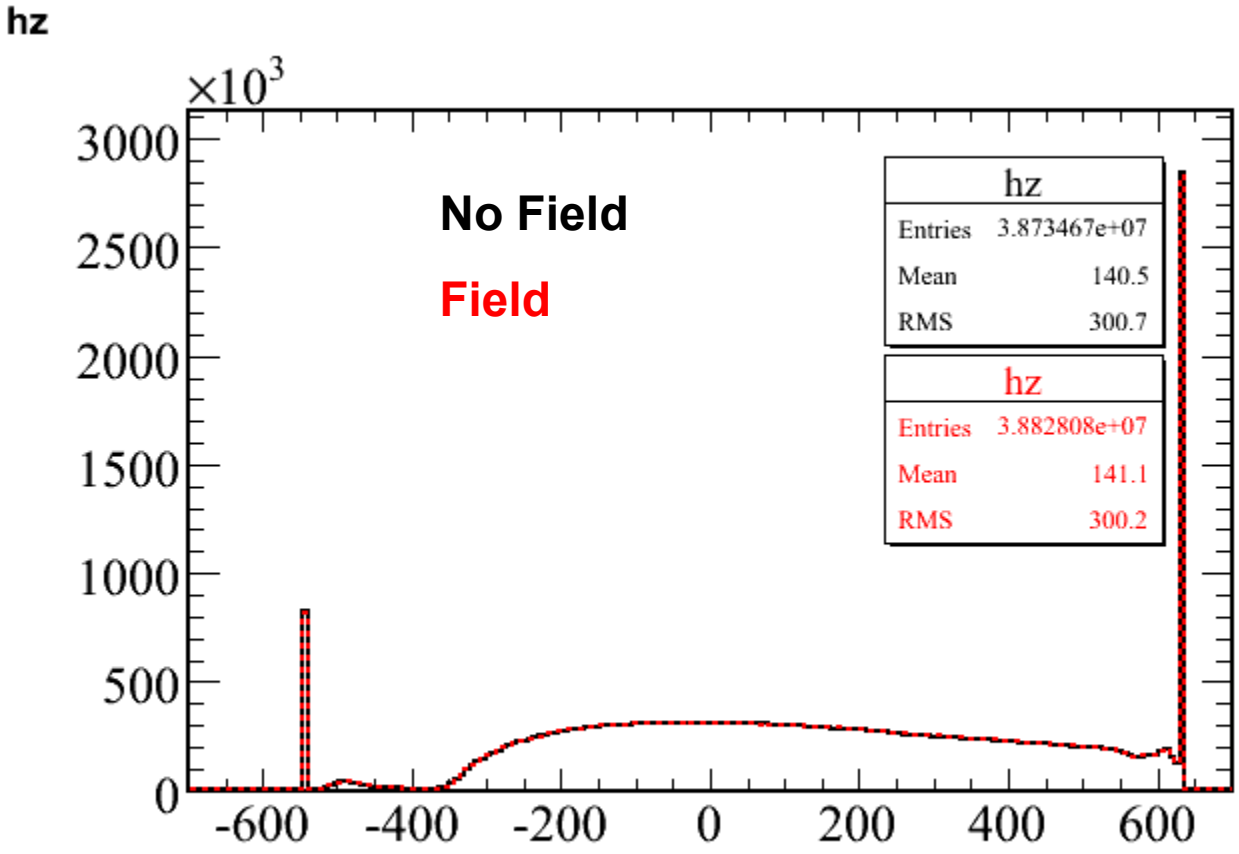
Negitive particles: Field/No_Field, p>5GeV



y Distribution

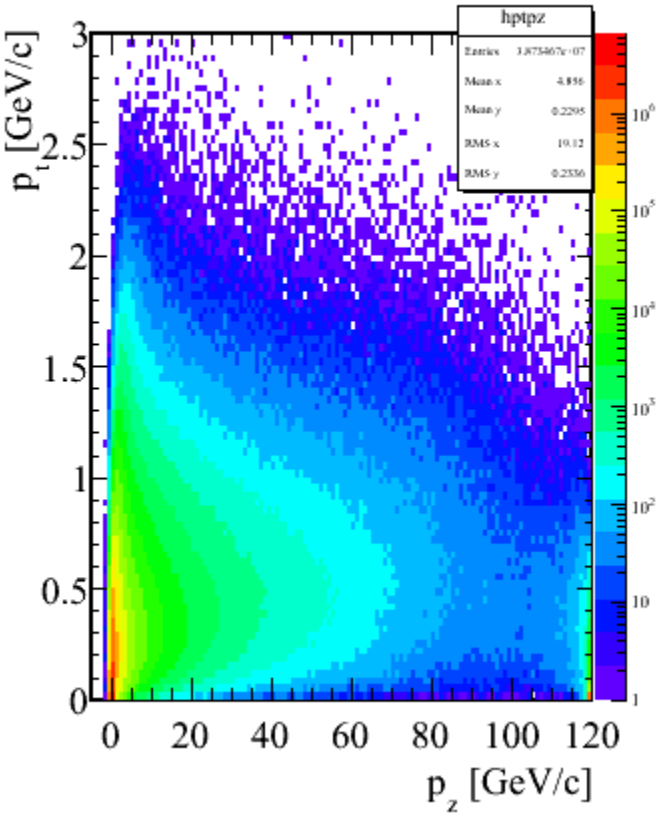


z Distribution

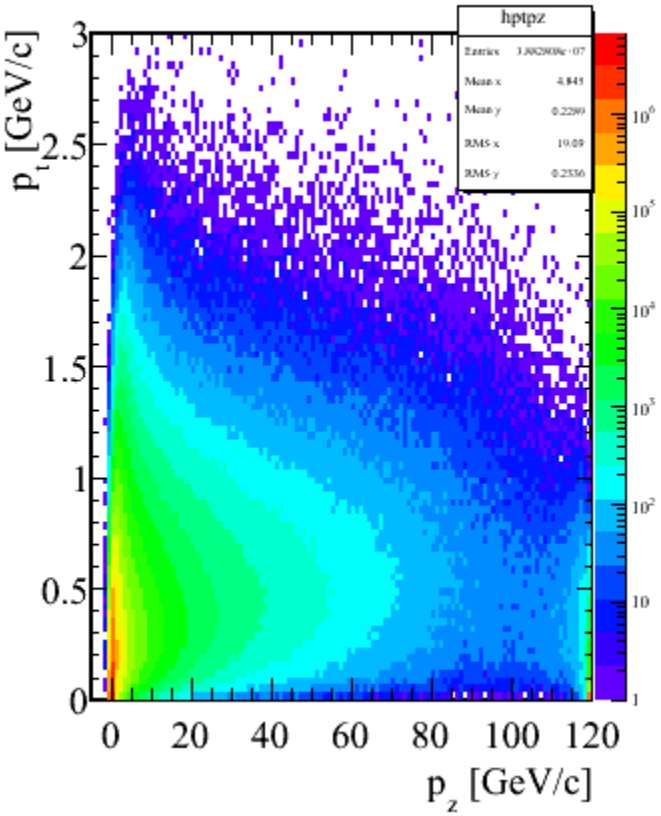


p_t vs. p_z

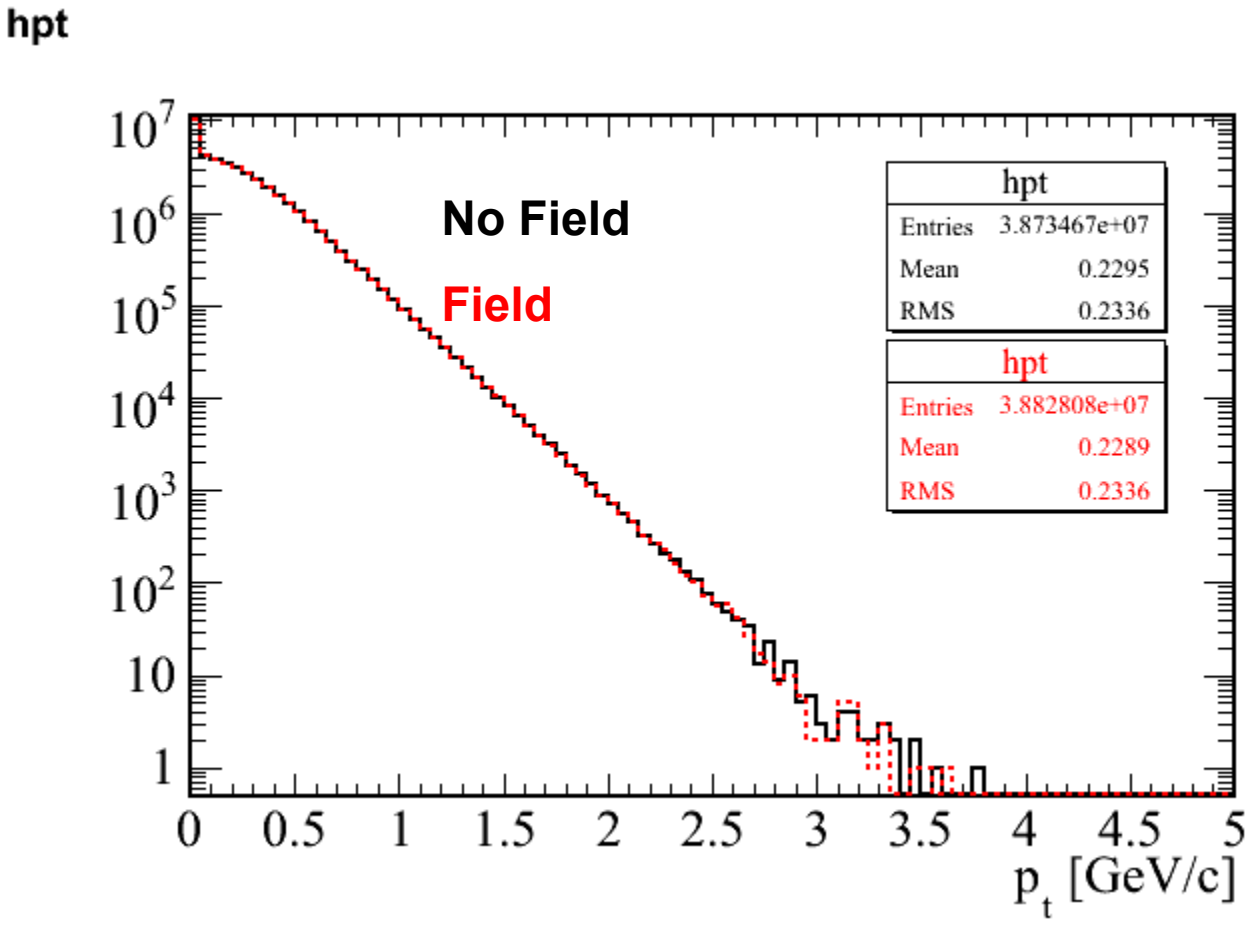
No Field



Field

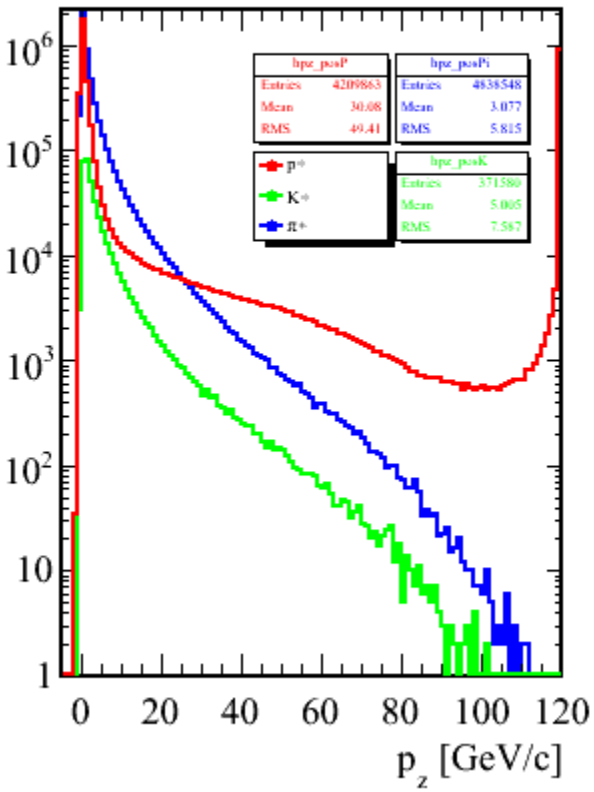


p_t Distribution

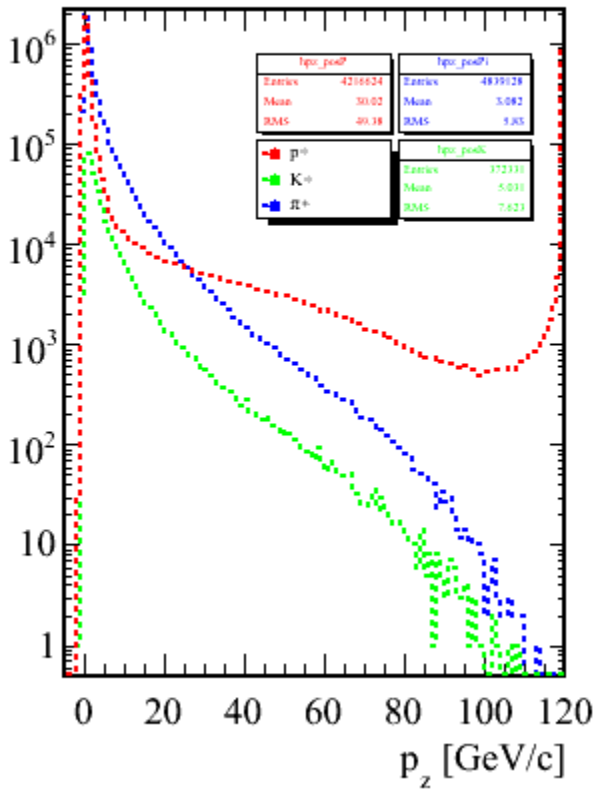


p_z Distribution for +ve particles

No Field

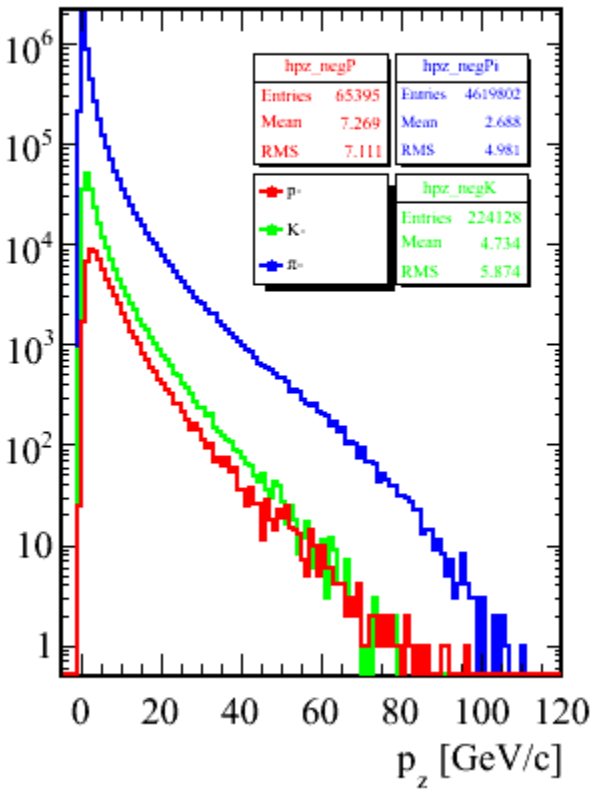


Field

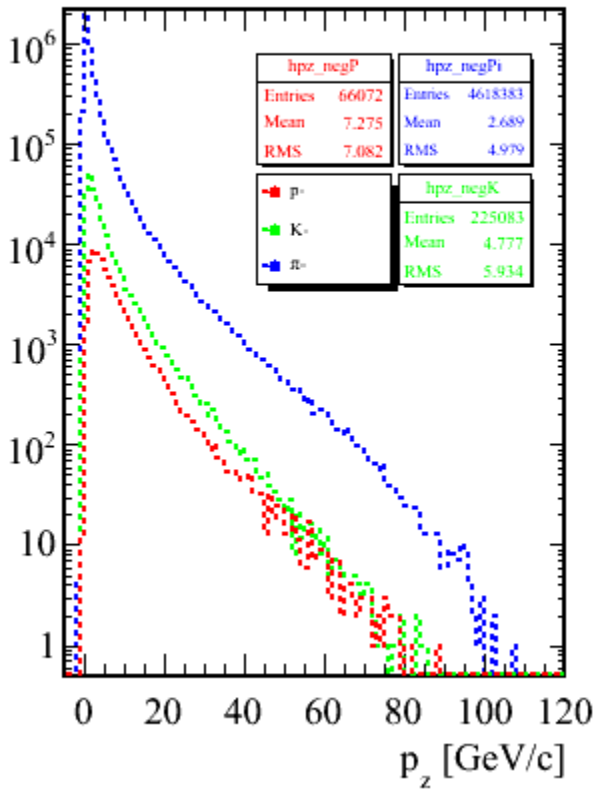


p_z Distribution for –ve particles

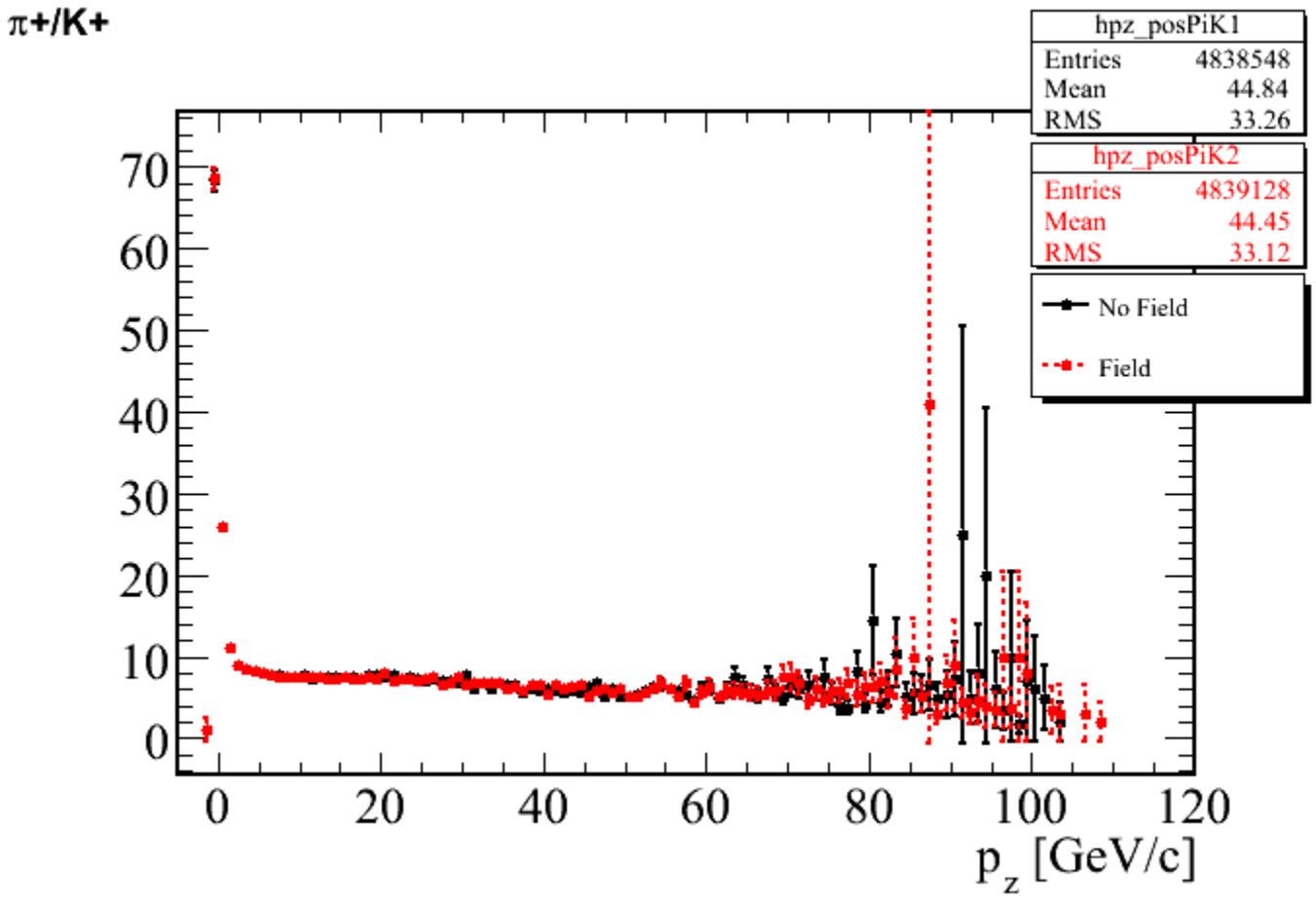
No Field



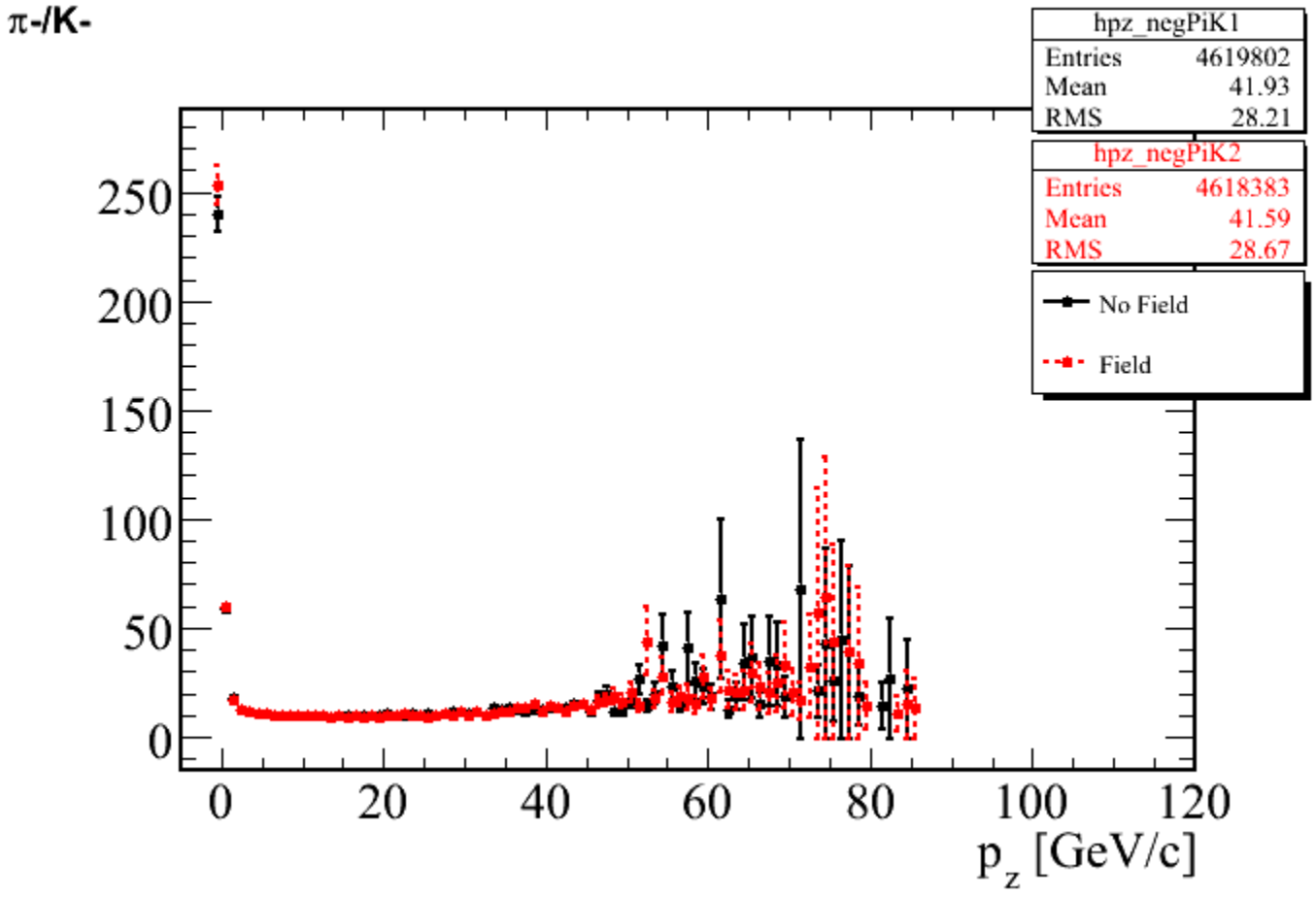
Field



π^+/K^+ Distribution



π^-/K^- Distribution



Conclusion

- Have successfully included Bfield into NuMI target
- Comparsion of Field on and Field off shows only small difference
  - Low momentum particles distribution are slightly skewed as expected
  - Mainly affects electrons below 5GeV
  - Negligible affect on π/K ratio